AQUALON
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HERCULES* NITROCELLULOSE WET
WITH ISOPROPYL ALCOHOL
(All types and viscosity grades)

MSDS No.: 316 0000 0500-09

Supersedes MSDS No.: 316 0000 0500-08 Date: 12/10/93

I. PRODUCT IDENTIFICATION

WARNING! FLAMMABLE SOLID.
MAY CAUSE MILD TEMPORARY EYE, SKIN, NOSE, AND THROAT IRRITATION.
VAPORS MAY CAUSE DROWSINESS AND DIZZINESS.
IF SWALLOWED MAY CAUSE LIVER DAMAGE.

HERCULES* NITROCELLULOSE WET WITH ISOPROPYL ALCOHOL
(All types and viscosity grades)

HMIS RATINGS:(1)

Health hazard:	2	Moderate
Flammability hazard:	3	Serious
Reactivity hazard:	1	Slight

CASRN: Mixture

CHEMICAL AND COMMON NAME: Cellulose nitrate wet with 2-propanol; nitrocellulose; nitrocotton

APPEARANCE AND ODOR: White fibrous, cubed or granular particles, wet with isopropanol; odor characteristic of isopropanol

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(1)Explanation of acronyms:
HMIS: Hazardous Materials Identification System rating for product as supplied.
CASRN: Chemical Abstracts Service Registry Number
AIHA WEEL: American Industrial Hygienists Association - Workplace Environmental Exposure Level.
OSHA: Occupational Safety and Health Administration.
TLV: Registered trademark of American Conference of Governmental Industrial Hygienists for Threshold Limit Values.
TWA: Time Weighted Average
STEL: Short term exposure limit (See 29 CFR 1910.1048, March 1, 1989, revision)
C: Ceiling exposure concentration (See 29 CFR 1910.1000, March 1, 1989, rev.)
SKIN: May be absorbed through skin (See 29 CFR 1910.1048, March 1, 1989, rev.)
N/A: Not applicable

II. HAZARDOUS INGREDIENTS & EXPOSURE LIMITS

CHEMICAL & COMMON NAMES	CASRN	WT %	RECOMMENDED AIRBORNE LEVELS(1) 1991-1992 OSHA TWA	TLV-TWA
Nitrocellulose	9004-70-0	70	Not established (2) (Physiologically inert)	
Isopropyl alcohol	67-63-0	30	400 ppm STEL 500 ppm	

(2) As Aqualon interprets the U.S. Occupational Safety and Health Act and Regulations, including the Hazard Communication Standard 29 CFR 1910.1200 dated August 24, 1987, this product should NOT be considered a health hazard.

III. TYPICAL PHYSICAL & CHEMICAL CHARACTERISTICS

BOILING POINT: 83 C (181 F) (3)

VAPOR PRESSURE AT 20 C: 33 mm Hg (3)

VAPOR DENSITY: Heavier than air (3)

VOLATILE (WT.),%: 30

FREEZING POINT: -86 C (-128 F) (3)

SOLUBILITY IN WATER: Miscible (3)

SPECIFIC GRAVITY: 1.23

pH: N/A

EVAPORATION RATE: Faster than butyl acetate (3)

IV. FIRE, EXPLOSION, & REACTIVITY HAZARD DATA

WARNING! FLAMMABLE SOLID.

FLASH POINT: 12 C (53 F) Closed cup (3)

FLAMMABLE LIMITS: Not determined

AUTOIGNITION TEMPERATURE: Nitrocellulose decomposes at about 160 C (320 F).

EXTINGUISHING MEDIA:
Water is the most effective fire extinguishing medium for nitrocellulose and should be used in large volume.

(3) Approximate property of the wetting agent isopropanol. Property of product may be different.

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IV. FIRE, EXPLOSION, & REACTIVITY HAZARD DATA

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SPECIAL FIREFIGHTING PROCEDURES:

High heat on drums of nitrocellulose will cause vaporization of the wetting agent, resulting in an increase in pressure which may cause the release of the drum lid. Use extreme caution in approaching fires involving this material. Fight fires from a safe distance. Self-contained breathing apparatus should be used. No attempt should be made to fight advanced fires, except for remote activation of installed fire extinguishing equipment. Use water to keep fire-exposed containers cool.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

Nitrocellulose should never be permitted to become dry. It is highly dangerous in the dry state since it can easily be ignited and burns rapidly with intense heat. Under certain conditions, the burning of solvent-wet nitrocellulose will result in the evolution of large volumes of toxic fumes. Any person breathing the fumes from burning nitrocellulose should be placed promptly under a physician's care.

STABILITY CONSIDERATIONS:

Stable. Conditions to avoid: Rate of deterioration increases with increasing temperature and time. Avoid exposure to heat. Use oldest material first.

INCOMPATIBILITY WITH: Alkaline materials and strong acids

HAZARDOUS PRODUCTS OF COMBUSTION:

Combustion products vary depending on fire conditions and other combustibles present in the fire. The predominant products will be carbon monoxide, carbon dioxide, and nitrogen oxides. Under some conditions, methane, irritating aldehydes and carboxylic acids and hydrogen cyanide may be formed.

HAZARDOUS POLYMERIZATION: Will not occur.

EMPTY DRUMS:

Empty drums contain residue that will release flammable vapors which may explode, causing severe injury or death. Keep away from heat, flames, sparks or other sources of ignition. Do not cut, weld, drill, grind or puncture drum.

When galvanized returnable drums are empty, wash the RESIDUE from the inside of the drum to the bottom of the container. Leave about an inch of water in the bottom of the drum to guard against Nitrocellulose residue becoming dry. The cover and sealing ring should be placed on the drum, then tightened with nonsparking tools.

After cleaning as described above, empty galvanized drums should then be returned to Aqualon in accordance with all Federal, State and Local Transportation Regulations.

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IV. FIRE, EXPLOSION, & REACTIVITY HAZARD DATA

EMPTY DRUMS:...Continued

When nonreturnable painted drums are empty, the drums should be wiped with a rag or cloth dampened with water, the cover should then be placed on and sealing ring tightened with nonsparking tools. The rags, after use, should be placed in a covered waste container, wet down with water and disposed of at the end of the day.

Nonreturnable drums after being purged of all hazardous residue, should be reconditioned and tested by an approved drum reconditioner before reuse, or disposed of in an environmentally approved manner and in accordance with all legal requirements.

Any waste generated from washing or cleaning these drums should be disposed of in accordance with all Federal, State and Local Hazardous Waste Regulations.

Aqualon has supplied this drum only as a container for the original shipment of its product to its customer. Proper return, reconditioning or disposal of the drum is the responsibility of the customer.

V. HEALTH HAZARD DATA

WARNING! MAY CAUSE MILD TEMPORARY EYE, SKIN, NOSE, AND THROAT IRRITATION.
VAPORS MAY CAUSE DROWSINESS AND DIZZINESS.
IF SWALLOWED MAY CAUSE LIVER DAMAGE.

SIGNS AND SYMPTOMS OF OVEREXPOSURE IN THE WORKPLACE:

EYES:	Redness
SKIN:	Redness, chapping, cracks
INHALATION:	Respiratory irritation, impaired coordination, dizziness, headache, nausea
INGESTION:	Impaired coordination, dizziness, headache, nausea

EMERGENCY & FIRST AID PROCEDURES:

EYES: In case of contact, immediately flush with plenty of low-pressure water for at least 15 minutes. Remove any contact lenses to ensure thorough flushing. Call a physician.

SKIN: Promptly wash with soap and running water. Remove contaminated clothing. Wash clothing before reuse.

INHALATION: Remove to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

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V. HEALTH HAZARD DATA

EMERGENCY & FIRST AID PROCEDURES...Continued

INGESTION: If conscious, the person should immediately drink large quantities of liquid to dilute this product. Induce vomiting. Call a physician. NEVER give liquids to an unconscious person. NEVER induce vomiting in an unconscious person.

MEDICAL CONDITIONS GENERALLY RECOGNIZED AS BEING AGGRAVATED BY EXPOSURE:
None known. Absorption of large amounts due to drinking ISOPROPYL ALCOHOL or prolonged occluded skin contact may aggravate pre-existing liver or kidney disease.

PRIMARY ROUTES OF ENTRY: Eyes, skin, inhalation, ingestion

CANCER INFORMATION:

ISOPROPYL ALCOHOL: Not listed as a carcinogen by NTP(National Toxicology Program); not regulated as a carcinogen by OSHA (Occupational Safety & Health Administration); evaluated by IARC (International Agency for Research on Cancer) and found to be non-carcinogenic.

REPORTED HUMAN EFFECTS:

ISOPROPYL ALCOHOL VAPOR: Irritation of eyes, nose, and throat; dizziness.

ISOPROPYL ALCOHOL LIQUID: Severe irritation of eyes. Repeated skin contact may cause allergic skin reaction (sensitization), defatting of skin followed by cracking of skin and secondary microbial infections. Swallowing of various amounts of liquid isopropyl alcohol has been reported to cause headache, drowsiness, severe irritation of the G-I tract, abdominal pain, diarrhea, shock, decreased body temperature, decreased blood pressure, hemolytic anemia, kidney failure, coma, and death. Repeated skin contact with a compress soaked with isopropyl alcohol also has been reported to lead to coma following absorption through the skin. The coma may be reversible, depending on the amount swallowed or absorbed through the skin.

REPORTED ANIMAL EFFECTS:

ISOPROPYL ALCOHOL: In addition to the effects reported in humans, the following effects were reported in laboratory animals following exposure by ingestion or inhalation at various multiples of the TLV or its equivalent. Slowed heart rate, respiratory difficulties, and effects on liver and spleen. No effects on reproductive function or embryonic or postnatal development were seen in rats drinking ten times the maximum amount of isopropyl alcohol that would be inhaled in an 8-hour shift at the TLV. Some fetal development effects were seen in rats following daily ingestion of large amounts of isopropyl alcohol by the mother during most of the pregnancy.

OTHER:

ISOPROPYL ALCOHOL: Negative in Ames test. No chromosome aberrations in bone marrow cells from rats dosed with isopropyl alcohol.

VI. SPILL PROCEDURES & WASTE DISPOSAL

SPILL PROCEDURES:

Shut off or extinguish all sources of ignition. Immediately soak spilled material with water and remove to covered metal containers. Add water to containers. Do not allow material to become dry.

WASTE DISPOSAL METHOD:

Any method of disposal must be in accordance with local, state, and federal hazardous waste regulations.

1. Large quantities - Burn in thin layers (no more than 2 inches deep) in an outside, open isolated location. Do not burn in a boiler firebox, incinerator, or other confining equipment.

2. Small quantities - In a well-ventilated area such as a laboratory hood, denitrate in an aqueous solution of 5% sodium hydroxide. Always be certain that small quantities of nitrocellulose, that have been thoroughly wetted with water, are added to the 5% sodium hydroxide solution. The slurry should be stirred until the nitrocellulose has been completely digested, i.e., all of the nitrocellulose particles have been dissolved and the aqueous solution pH is basic. The digested material can then be flushed to a waste disposal settling pond or chemical sewer using large quantities of water.

Refer to Section VIII for specific Federal Environmental and Regulatory Data regarding use or disposal of this product.

VII. APPLICABLE CONTROL MEASURES

APPROPRIATE HYGIENIC PRACTICES:

Do not allow eye or skin contact.
Avoid breathing vapor.
Wash thoroughly after handling, and before eating, drinking or smoking.
Remove contaminated clothing promptly and clean thoroughly before reuse.

PERSONAL PROTECTIVE EQUIPMENT:

Chemical goggles
Impervious gloves
Appropriate respiratory protection is required when exposure to an airborne contaminant is likely to exceed acceptable limits. Respirators should be selected and used in accordance with OSHA, Subpart I (29 CFR 1910.134) and manufacturer's recommendations.
Appropriate protective clothing

WORK PRACTICES:

Eyewash fountains and safety showers should be easily accessible.

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VII. APPLICABLE CONTROL MEASURES

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ENGINEERING CONTROLS:

Adequate ventilation should be provided to keep vapor concentrations below acceptable exposure limits. Discharge from the ventilation system should comply with applicable air pollution control regulations.

HANDLING AND STORAGE PRECAUTIONS:

Electrically bond and ground the drum while emptying.
Do not allow contents to become dry.
Handle carefully - Do not puncture, drop or slide container.
This product may react with alkaline materials and strong acids and should not be stored near such materials.

Solvent-wet nitrocellulose is a free-flowing material which can generate static electricity while being poured from the drum. The recommended method of adding Hercules solvent-wet (alcohol) nitrocellulose to a vessel is by pouring it from its original container onto a grounded metal chute and letting the material flow gently into the vessel. The chute should be designed to allow placing the drum so the material can be removed from it and, at the same time, position the operator 3 to 4 feet away from the top opening of the vessel where flammable vapors may be present. The chute should be open to avoid confinement and allow for ease in cleanup. The drum, chute, and vessel must be electrically bonded and grounded.

Where the above procedure is not practical and the nitrocellulose is to be added directly to a mixer, the importance of assuring proper bonding and grounding of both drum and equipment cannot be overemphasized.

PROTECTIVE MEASURES DURING REPAIR AND MAINTENANCE:

Eliminate sources of ignition.
Completely isolate and thoroughly clean all equipment, piping or vessels before beginning maintenance or repairs.

VIII. ENVIRONMENTAL REGULATORY DATA

The following environmental and regulatory data are provided to assist users of this product in defining their regulatory environmental compliance obligations.

A. PRODUCT COMPOSITION

PRODUCT (P) or COMPONENT NO.	TRADE NAME or CHEMICAL COMPONENT	CASRN	WT. PERCENT
P	HERCULES* NITROCELLULOSE WET WITH ISOPROPYL ALCOHOL	Mixture	100
1	Isopropyl alcohol	67-63-0	30

B. SARA TITLE III (See footnotes)

COMPONENT NO.	SEC. 304 EHS RQ (lbs)	SEC. 302 EHS TPQ (lbs)	SEC. 311/312 HAZARD CATEGORY	SEC. 313 TOXIC CHEMICAL (YES, NO)
P	N/A	N/A	HC-1, HC-3, HC-5	NO
1	N/A	N/A	HC-1	YES

C. CERCLA (40 CFR 302.4 HAZARDOUS SUBSTANCE & REPORTABLE QUANTITIES)

This product does NOT contain any hazardous substances listed in 40 CFR 302.4.

D. RCRA INFORMATION

This product exhibits the characteristics of ignitability and reactivity as defined in hazardous waste regulations 40 CFR 261 Subpart C. Therefore, disposal of unused product must comply with hazardous waste regulations.

E. TSCA STATUS

The components of this product are included on the EPA TSCA Chemical Substance Inventory.

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VIII. ENVIRONMENTAL REGULATORY DATA

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FOOTNOTES:

SEC. 302 - Threshold Planning Quantity, Extremely Hazardous Substance (EHS) (40 CFR 355 Emergency Planning and Notification regulations)

N/A: This chemical is not an EHS. Therefore, there is no Threshold Planning Quantity (TPQ).

SEC. 304 - Reportable Quantity for Releases of an EHS (40 CFR 355, Appendix A)

N/A: This chemical is not an EHS. Therefore, there is no Reportable Quantity (RQ).

SEC. 311/312 - 40 CFR 370 Hazardous Chemical Reporting Requirements "Hazard Categories"

HC-1 Immediate (acute) health hazard
HC-2 Delayed (chronic) health hazard
HC-3 Fire hazard
HC-4 Sudden release of pressure hazard
HC-5 Reactive hazard
NHH Not a health hazard
NPH Not a physical hazard

SEC. 313 - 40 CFR 372 Toxic Chemical Release Reporting Requirements

NO: This component is NOT subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372 Toxic Chemical Reporting requirements.

YES: This component is subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372 Toxic Chemical Reporting requirements. Percent composition (or estimated range) is listed above.

N/A: This product is a mixture. As such, it is not listed as a Toxic Chemical under 40 CFR 372, Section 313 reporting requirements. Reportable constituents are listed individually where they exceed threshold concentration limits.
